

C2

Exercise 1A

Note Title

16/01/2007

1a Simplify

$$\frac{4x^4 + 5x^2 - 7x}{x} = 4x^3 + 5x - 7$$

b

$$\frac{7x^8 - 5x^5 + 9x^3 + x^2}{x} = 7x^7 - 5x^4 + 9x^2 + x$$

c

$$\frac{-2x^3 + x}{x} = -2x^2 + 1$$

C2 Ex1A

$$1 d \quad \frac{-x^4 + 4x^2 + 6}{x} = -x^3 + 4x + \frac{6}{x}$$

$$e \quad \frac{7x^5 - x^3 - 4}{x} = 7x^4 - x^2 - \frac{4}{x}$$

$$f \quad \frac{8x^4 - 4x^3 + 6x}{2x} = 4x^3 - 2x^2 + 3$$

$$1g \quad \frac{9x^2 - 12x^3 - 3x}{3x} = 3x - 4x^2 - 1$$

$$h \quad \frac{8x^5 - 2x^3}{4x} = 2x^4 - \frac{x^2}{2} \left(\text{or } 2x^4 - \frac{1}{2}x^2 \right)$$

$$i \quad \frac{7x^3 - x^4 - 2}{5x} = \frac{7x^2}{5} - \frac{x^3}{5} - \frac{2}{5x}$$

C2 Ex 1A

$$\begin{aligned} \text{j} \quad \frac{-4x^2 + 6x^4 - 2x}{-2x} &= 2x - 3x^3 + 1 \\ &= -3x^3 + 2x + 1 \\ &\quad \text{(if you prefer descending powers)} \end{aligned}$$

$$\text{k} \quad \frac{-x^8 + 9x^4 + 6}{-2x} = \frac{x^7}{2} - \frac{9x^3}{2} - \frac{3}{x}$$

$$\text{l} \quad \frac{-9x^9 - 6x^4 - 2}{-3x} = 3x^8 + 2x^3 + \frac{2}{3x}$$

C2 Ex 1A

2 Simplify these fractions as far as possible

$$a \quad \frac{(x+3)\cancel{(x-2)}}{\cancel{(x-2)}} = x+3$$

$$b \quad \frac{(x+4)\cancel{(3x-1)}}{\cancel{(3x-1)}} = x+4$$

$$c \quad \frac{(x+3)^2}{x+3} = x+3$$

CEX1A

$$2d \quad \frac{x^2 + 10x + 21}{(x+3)} = \frac{(x+3)(x+7)}{x+3} = x+7$$

$$e \quad \frac{x^2 + 9x + 20}{x+4} = \frac{(x+4)(x+5)}{x+4} = x+5$$

$$f \quad \frac{x^2 + x - 12}{x-3} = \frac{(x-3)(x+4)}{x-3} = x+4$$

C2 Ex 1A

$$2g \quad \frac{x^2 + x - 20}{x^2 + 2x - 15} = \frac{(x+5)(x-4)}{(x+5)(x-3)} = \frac{x-4}{x-3}$$

$$h \quad \frac{x^2 + 3x + 2}{x^2 + 5x + 4} = \frac{(x+1)(x+2)}{(x+1)(x+4)} = \frac{x+2}{x+4}$$

does NOT equal $\frac{x+1}{x+2}$!

$$i \quad \frac{x^2 + x - 12}{x^2 - 9x + 18} = \frac{(x-3)(x+4)}{(x-3)(x-6)} = \frac{x+4}{x-6}$$

C2Ex1A

$$2j \quad \frac{2x^2 + 7x + 6}{(x-5)(x+2)} = \frac{(2x+3)(x+2)}{(x-5)(x+2)} = \frac{2x+3}{x-5}$$

$$k \quad \frac{2x^2 + 9x - 18}{(x+6)(x+1)} = \frac{(x+6)(2x-3)}{(x+6)(x+1)} = \frac{2x-3}{x+1}$$

$$l \quad \frac{3x^2 - 7x + 2}{(3x-1)(x+2)} = \frac{(3x-1)(x-2)}{(3x-1)(x+2)} = \frac{x-2}{x+2}$$

C2 Ex 1A

$$2m \quad \frac{2x^2 + 3x + 1}{x^2 - x - 2} = \frac{(x+1)(2x+1)}{(x-2)(x+1)} = \frac{2x+1}{x-2}$$

$$u \quad \frac{x^2 + 6x + 8}{3x^2 + 7x + 2} = \frac{(x+2)(x+4)}{(3x+1)(x+2)} = \frac{x+4}{3x+1}$$

$$o \quad \frac{2x^2 - 5x - 3}{2x^2 - 9x + 9} = \frac{(2x+1)(x-3)}{(2x-3)(x-3)} = \frac{2x+1}{2x-3}$$